UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,562	02/23/2002	Christopher P. Townsend	115-002	3189

26542 7590 01/08/2003

JAMES MARC LEAS
37 BUTLER DRIVE
S. BURLINGTON, VT 05403

EXAMINER
COHEN, AMY R

ART UNIT	PAPER NUMBER
2859	

DATE MAILED: 01/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,562	TOWNSEND ET AL.	
	Examiner	Art Unit	
	Amy R Cohen	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 June 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 39. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Page 20, paragraph 1, the use of primes is confusing because it is unclear whether this paragraph is directed to Fig. 6 or Fig. 7. Fig. 7 shows 20a' and 20b' and a knee joint sensor, while Fig. 6 shows 20a and 20b, not prime, and no knee joint sensor.

Appropriate correction is required.

Claim Objections

3. Claims 1 and 50 are objected to because of the following informalities:

Claim 1, line 2, "said a first" should read --said first--;

Claim 50, line 1 "said sensor" should read --said first sensor--.

Appropriate correction is required.

4. Claim 6 is objected to because of the following informalities:

The dependency of claim 6 on claim 5 makes the claim language of claim 6 awkward. Examiner suggests having claim 6 dependent on claim 1.

Appropriate correction is required.

5. Claim 16 is objected to because of the following informalities:

Claim 16 is dependent on itself and it appears that it should be dependent on claim 15, which is how examiner is reading claim 16.

Appropriate correction is required.

6. Claims 7, 38, 48, 49, 56 are objected to because of the following informalities:

Claim 7, line 1 "said magnetometer data" lacks proper antecedent basis in the claims;

Claim 38, line 2 "said accelerometers' lacks proper antecedent basis in the claims;

Claim 48, line 1 "said sensors" lacks proper antecedent basis in the claims;

Claim 49, lines 1 and 2 "said network of sensors" lacks proper antecedent basis in the claims;

Claim 56, line 2 "the housing lacks proper antecedent basis in the claims;

Claim 80, lines 2 "said sitting position" lacks proper antecedent basis in the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 20 and 40-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20 and 40 recite the ranges "too little," "too small," "too many," "too much," and/or "too long" which are all indefinite ranges or limitations.

Claims 43-82 are rejected based on their dependency on rejected claim 40.

9. Claims 33 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 33 recites a "number of inclinations at each angle range during a period of time" and claim 34 recites "inclination v. time," however, no indication of what the angle range is or the time period is nor an apparatus to measure the angle range, an inclination at an angle range, and a time period is given.

10. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 recites the limitation "linear acceleration on the data," however, there is no indication of measuring the linear accelerations in the device.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1-4, 13, 25, 28-30, 32, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Lummel (U. S. Patent No. 6,165,143).

Van Lummel teaches a device (Fig. 1) for attaching to a living subject (1), comprising a first sensor (2), a second sensor (3, 4, 5), a processor (Col 4, lines 25-27), and a storage device (Col 4, lines 25-27), said first sensor for attaching to a first body segment above the hip joint (Fig. 1), said second sensor for attaching to a second body segment below the hip joint (Fig. 1), wherein said first sensor and said second sensor each comprise an inclination measuring device (Col 3, lines 41-48), wherein data from said first sensor and from said second sensor is processed in said processor and stored in said storage device (Col 4, lines 25-27), for distinguishing lying, sitting, and standing positions (Col 7, lines 10-14).

Van Lummel teaches the device wherein said inclination device comprises a solid state device, wherein said inclination device comprises a dc accelerometer (Col 4, lines 34-44), and wherein said inclination measuring device comprises three accelerometers orthogonally mounted (Col 4, lines 34-44 and Fig. 1).

Van Lummel teaches the device wherein said storage device comprises a solid state device (Col 4, lines 25-28).

Van Lummel teaches the device wherein said processor comprises a microprocessor, a signal processor, or a personal computer (Col 4, lines 25-28).

Van Lummel teaches the device wherein said data is used to adjust physical therapy (Col 2, lines 17-53).

Van Lummel teaches the device comprising a data entry system (Col 4, lines 8-33), wherein said data entry system comprises a button, wherein time, date, or other data are recorded when said data entry system is used (Col 4, lines 8-33).

Van Lummel teaches the device wherein said device I for determining body posture in said sitting position (Fig. 2 and Col 7, lines 10-14).

13. Claims 1, 5-16, 25-27, 35-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Hutchings (U. S. Patent No. 6,305,221).

Hutchings teaches a device (10) for attaching to a living subject, comprising a first sensor (14), a second sensor (12), a processor (6), and a storage device (Col 25, lines 1-4), said first sensor for attaching to a first body segment above the hip joint (Fig. 1), said second sensor for attaching to a second body segment below the hip joint (Fig. 1), wherein said first sensor and said second sensor each comprise an inclination measuring device (48, and Col 14, lines 17-45 and Col 20, lines 26-48), wherein data from said first sensor and from said second sensor is processed in said processor and stored in said storage device (Col 24, lines 14-31), for distinguishing lying, sitting, and standing positions.

Hutchings teaches the device wherein said inclination measuring device comprises a plurality of magnetometers (24) and wherein said magnetometer data is for providing direction with respect to the earth's magnetic field (Fig. 13).

Hutchings teaches the device wherein data from said first sensor is subtracted from data from said second sensor to determine a difference in orientation (Col 20, lines 26-67).

Hutchings teaches the device wherein said first sensor and said second sensor are for measuring a range of motion of said second body segment with respect to said first body segment (Figs. 4, 5, 8, 12).

Hutchings teaches the device wherein said range of motion measurement data is analyzed for change of range of motion over time (Col 13, line 34-Col 14, line 16 and Col 14, lines 31-63).

Hutchings teaches the device wherein initial values of said time dependent data are tared out to provide change from said initial values (Col 15, lines 1-55).

Hutchings teaches the device wherein said storage device is a solid state device and wherein said storage device comprises a non-volatile memory device (Col 25, lines 1-4).

Hutchings teaches the device comprising a feedback mechanism (56, Col 25, lines 1-13).

Hutchings teaches the device comprising a housing (14), wherein said first sensor, said storage device, said processor, and said feedback mechanism are all within said housing (Col 25, lines 5-28).

Hutchings teaches the device wherein said processor comprises a microprocessor (64), a signal processor, or a personal computer.

Hutchings teaches the device wherein said data comprises body segment orientation data as a function of time (Col 7, line 47-Col 8, line 44).

Hutchings teaches the device wherein data comprises posture data as a function of time (Col 14, lines 17-63).

Hutchings teaches the device comprising a digital filter wherein said digital filter (53) is for reducing effect of linear accelerations on the data (Col 23, lines 41-55).

Hutchings teaches the device wherein said digital filter comprises a low pass filter or high pass filter wherein output of said accelerometers that passes through said high pass filter is subsequently integrated and used to computer a resultant velocity which is used to calculate energy used (Col 23, lines 41-55).

14. Claims 1-3, 15, 17-21, 23, 24, and 80 are rejected under 35 U.S.C. 102(e) as being anticipated by Jacobson et al. (U. S. Patent No. 6,198,394).

Jacobson et al. teaches a device (14) for attaching to a living subject (10), comprising a first sensor (22, 24, 26, 30), a second sensor (22, 24, 26, 30), a processor (330), and a storage

device (349), said first sensor for attaching to a first body segment above the hip joint, said second sensor for attaching to a second body segment below the hip joint, wherein said first sensor and said second sensor each comprise an inclination measuring device (100, 70), wherein data from said first sensor and from said second sensor is processed in said processor and stored in said storage device (Col 6, lines 45-57), for distinguishing lying, sitting, and standing positions (Col 6, lines 21-36).

Jacobson et al. teaches the device wherein said inclination measuring device comprises a solid state device, wherein said device comprises a dc accelerometer (22, 100).

Jacobson et al. teaches the device comprising a feedback mechanism (120, 128, Col 8, lines 28-36).

Jacobson et al. teaches the device comprising a housing (18) separate from said first sensor and said second sensor, wherein said feedback mechanism is within said housing (Fig. 4A).

Jacobson et al. teaches the device wherein said first sensor and said second sensor are wirelessly connected (60, 70) to said housing containing said feedback mechanism, wherein said connection is an RF connection (Col 7, lines 36-55).

Jacobson et al. teaches the device wherein said feedback mechanism is activated if a preset range of motion threshold has been exceeded too many times (Col 8, lines 28-37).

Jacobson et al. teaches the device wherein said feedback mechanism provides a vibratory or auditory feedback (Col 11, lines 41-50).

Jacobson et al. teaches the device wherein said feedback mechanism provides feedback to warn of a problem, discourage a movement, support a desired result, or encourage a movement (Col 8, lines 28-37).

Jacobson et al. teaches the device wherein said problem comprises repeatedly exceeding a pre-programmed inclination range (Col 7, lines 1-24 and Col 8, lines 28-37).

Jacobson et al. teaches the device wherein said device is for determining body posture in a sitting position (Col 6, lines 21-37).

15. Claims 1, 33, 34, 40, 48-50, 74-75 are rejected under 35 U.S.C. 102(b) as being anticipated by LaCourse et al. (U. S. Patent No. 5,375,610).

LaCourse teaches a device (Fig. 2) comprising a sensor (24), a processor (14), a storage device (14), and a feedback mechanism (Col 5, lines 30-64) wherein data from said sensor is processed in said processor to provide an output (Col 5, lines 54-64), wherein said output is stored in said storage device as a function of time (Col 5, lines 54-64), and wherein multiple points of said time dependent output stored in said storage device are processed in said processor, wherein said processor directs said feedback mechanism to provide information or instruction in response to said multiple points of time dependent output indicating too little activity or too small range of motion of a joint during an interval of time, or repetitive activity that can cause repetitive stress injury or too many motions beyond a specified range of motion during an interval of time or too much vibration for too long a time (Col 5, lines 30-64).

LaCourse teaches the device comprising a network of sensors (Fig. 2) wherein a first sensor of said network of sensors is for placing on a first body segment and a second sensor of said network of sensors is for placing on a second body segment connected to said first body segment (Fig. 2).

LaCourse teaches the device wherein output from said sensor is subtracted from data from said second sensor to provide angle of a joint there between (Col 5, lines 30-64).

LaCourse teaches the device wherein said output is displayed as a histogram showing a number of inclinations at each angle range during a time period and wherein said output is displayed as inclination v. time (Col 8, lines 1-46).

16. Claims 40-44, 48, 54-73, and 81-82 are rejected under 35 U.S.C. 102(e) as being anticipated by Brann (U. S. Patent No. 6,059,576).

Brann teaches a device (10) comprising a sensor (12), a processor (32), a storage device (50), and a feedback mechanism (Col 5, lines 13-32) wherein data from said sensor is processed in said processor to provide an output (44), wherein said output is stored in said storage device as a function of time (Col 5, lines 40-55), and wherein multiple points of said time dependent output stored in said storage device are processed in said processor, wherein said processor directs said feedback mechanism to provide information or instruction in response to said multiple points of time dependent output indicating too little activity or too small range of motion of a joint during an interval of time, or repetitive activity that can cause repetitive stress injury or too many motions beyond a specified range of motion during an interval of time or too much vibration for too long a time (Col 5, line 13-Col 6, line 61).

Brann teaches the device wherein said sensor comprises an inclination measuring device (30).

Brann teaches the device wherein said inclination measuring device comprises a solid state device (Col 4, lines 35-52), wherein said inclination measuring device comprises a dc accelerometer (Col 4, lines 35-52 and Col 5, lines 4-12), wherein said inclination measuring device comprises three accelerometers orthogonally mounted (Col 4, lines 45-48).

Brann teaches the device comprising a network of said sensors (Col 4, lines 45-48).

Brann teaches the device wherein said storage device comprises a solid state device Col 5, lines 44-55), wherein said storage device comprises a non-volatile memory device (Col 5, lines 44-55).

Brann teaches the device wherein said storage device and said processor are within the same housing (20).

Brann teaches the device comprising a housing (20), wherein said sensor, said storage device, said processor, and said feedback mechanism are all within said housing (Fig. 4).

Brann teaches the device comprising a housing separate from said sensor, wherein said feedback mechanism is within said separate housing (Fig. 2C and Col 3, lines 47-62).

Brann teaches the device wherein said sensor is wirelessly connected to said housing containing said feedback mechanism and wherein said wireless connection is an RF connection (Col 8, lines 28-39).

Brann teaches the device wherein said feedback mechanism is activated if a preset range of motion threshold has been exceeded more than a specific number of times (Col 6, lines 15-40 and Col 7, lines 31-43).

Brann teaches the device wherein said feedback mechanism provides vibratory or auditory feedback (Col 5, lines 13-32) and wherein said feedback mechanism comprises a piezo-electric buzzer or an electromagnetic shaker (Col 5, lines 13-32).

Brann teaches the device wherein said feedback mechanism provides feedback to warn of a problem, discourage a movement, support a desired result, or encourage a movement (Col 2, lines 45-62).

Brann teaches the device wherein said problem comprises repeatedly exceeding a pre-programmed inclination angle (Col 5, line 59-Col 6, line 14).

Brann teaches the device wherein said processor comprises a microprocessor (32), a signal processor (32), or a personal computer (16).

Brann teaches the device wherein said output comprises body segment orientation data as a function of time and wherein said output comprises posture data as a function of time (Col 3, lines 20-30 and Col 5, lines 33-47).

Brann teaches the device wherein said output is used to adjust physical therapy (Col 10, lines 24-42).

Brann teaches the device comprising a data entry system (32), wherein said data entry system comprises a button (36, 54).

Brann teaches the device wherein said data entry system is for recording the presence of pain (Col 10, lines 24-42).

Brann teaches the device wherein time, date, or other data are recorded when said data entry system is used (Col 5, lines 40-47).

Brann teaches the device wherein said device is wearable (Figs. 2A-C).

Brann teaches the device wherein said device records output over a series of intervals of time (Col 6, lines 15-40).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. Claims 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson et al. in view of Brann.

Jacobson et al. discloses the device for attaching to a living subject as described above in paragraph 14 and a data entry system (Figs. 5A and 6A).

Jacobson et al. does not disclose a device wherein said feedback mechanism comprises a piezoelectric buzzer or an electromagnetic shaker or wherein the data entry system is recorded for presence of pain.

Brann teaches a device for attaching to a living subject wherein said feedback mechanism comprises piezoelectric buzzer or an electromagnetic shaker (Col 5, lines 13-32) and wherein said data entry system is for recording the presence of pain (Col 10, lines 24-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Jacobson et al. to include a piezoelectric buzzer or an electromagnetic shaker and wherein said data entry system is for recording presence of pain, as taught by Brann, so that a user would be alerted by an audio or physical alarm if/when the feedback mechanism detected a problem and to record if/when there is a presence of pain for the user.

19. Claims 45-47, 49, 51-53, 76-79 rejected under 35 U.S.C. 103(a) as being unpatentable over Brann in view of Hutchings.

Brann discloses the device as described above in paragraph 16.

Brann does not disclose a device comprising a plurality of magnetometers, wherein a first sensor is for placing on a first body segment and a second sensor for placing on a second body segment, wherein said sensors are for measuring a range of motion, wherein said range of motion measurement data is analyzed for change of motion over time, wherein initial values are tared out, and comprising a digital filter comprising a low pass filter and a high pass filter.

Hutchings discloses the device (10) for attaching to a living subject, comprising a first sensor (14), a second sensor (12), a processor (6), and a storage device (Col 25, lines 1-4), said first sensor for attaching to a first body segment above the hip joint (Fig. 1), said second sensor for attaching to a second body segment below the hip joint (Fig. 1), wherein said first sensor and said second sensor each comprise an inclination measuring device (48, and Col 14, lines 17-45 and Col 20, lines 26-48), wherein data from said first sensor and from said second sensor is processed in said processor and stored in said storage device (Col 24, lines 14-31), for distinguishing lying, sitting, and standing positions.

Hutchings discloses the device wherein said inclination measuring device comprises a plurality of magnetometers (24) and wherein said magnetometer data is for providing direction with respect to the earth's magnetic field (Fig. 13).

Hutchings discloses the device wherein data from said first sensor is subtracted from data from said second sensor to determine a difference in orientation (Col 20, lines 26-67).

Hutchings discloses the device wherein said first sensor and said second sensor are for measuring a range of motion of said second body segment with respect to said first body segment (Figs. 4, 5, 8, 12).

Hutchings discloses the device wherein said range of motion measurement data is analyzed for change of range of motion over time (Col 13, line 34-Col 14, line 16 and Col 14, lines 31-63).

Hutchings discloses the device wherein initial values of said time dependent data are tared out to provide change from said initial values (Col 15, lines 1-55).

Hutchings discloses the device wherein said storage device is a solid state device and wherein said storage device comprises a non-volatile memory device (Col 25, lines 1-4).

Hutchings discloses the device comprising a feedback mechanism (56, Col 25, lines 1-13) and comprising a housing (14), wherein said first sensor, said storage device, said processor, and said feedback mechanism are all within said housing (Col 25, lines 5-28).

Hutchings discloses the device wherein said processor comprises a microprocessor (64), a signal processor, or a personal computer.

Hutchings discloses the device wherein said data comprises body segment orientation data as a function of time (Col 7, line 47-Col 8, line 44).

Hutchings discloses the device wherein data comprises posture data as a function of time (Col 14, lines 17-63).

Hutchings discloses the device comprising a digital filter wherein said digital filter (53) is for reducing effect of linear accelerations on the data (Col 23, lines 41-55).

Hutchings discloses the device wherein said digital filter comprises a low pass filter or high pass filter wherein output of said accelerometers that passes through said high pass filter is subsequently integrated and used to computer a resultant velocity which is used to calculate energy used (Col 23, lines 41-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Brann, to include a plurality of magnetometers, sensors to be placed on separate body parts reading a range of motion over time and a digital filter, as taught by Hutchings, so that a position of a user or a body segment of a user with respect to gravity could also be measured, so that the position would not only be stamped with a time but also

analyzed over a period of time, and so that signals from the sensors could be filtered out to reduce error.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following applications and patents disclose measuring devices Eakle, Jr. et al. (PG Pub No. US2002/0091482), Keller et al. (U. S. Patent No. 6,447,425), Golding et al. (U. S. Patent No. 6,323,807), Abraham-Fuchs et al. (U. S. Patent No. 6,210,301), Poulton (U. S. Patent No. 6,066,075), Livingston (U. S. Patent No. 5,459,676), and Nasiff (U. S. Patent No. 4,757,453).

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy R Cohen whose telephone number is (703) 305-4972. The examiner can normally be reached on 8 am - 5 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-34[illegible]

CHRISTOPHER W. FULTON
PRIMARY EXAMINER

ARC
January 6, 2003

Diego Gutierrez
Supervisory Examiner
Tech Center 2800